D-Link DGS-1216T

16-Port 10/100/1000Mbps + 2 Combo Mini GBIC Gigabit Smart Switch

Manual

D-Link®

Building Networks for People

Contents

About This Guide 1
Purpose 1
Terms/Usage 1
Introduction 3
Gigabit Ethernet Technology 3
Fast Ethernet Technology 4
Switching Technology 4
VLAN (Virtual Local Area Network) 5
Features 5
Unpacking and Installation 9
Unpacking 9
Installation 9
Rack Mounting 10
Connecting Network Cable 11
AC Power 11
Identifying External Components 13
Front Panel 13
Rear Panel 14
Understanding LED Indicators 15
Power and System LEDs 15
Ports 1~16 Status LEDs 15
Option Ports mini-GBIC 15 & mini-GBIC 16 mini-GBIC Status LEDs 16
Configuration 17
Installing the Web Management Utility 17
Discovery List 18
Monitor List 18
Device Setting 20
Toolbar 22
Configuring the Switch 23

Login....23
Setup Menu....25
Configuring Setup Setting....25
Port Settings....25
VLAN Settings (Virtual Local Area Network)....27
Trunk Setting....28
Mirror Setting....29
Device Status....29
Statistic....29
System Setting....30
Trap Setting....31
Set Password....32
Backup Setting....32
Reset Setting....33
Logout....33
Technical Specifications....37

ABOUT THIS GUIDE

Congratulations on your purchase of the 16-Port 10/100/1000Mbps + 2 Combo Mini GBIC Gigabit Smart Switch. This device integrates 1000Mbps Gigabit Ethernet, 100Mbps Fast Ethernet, and 10Mbps Ethernet network capabilities in a highly flexible package.

Purpose

This manual discusses how to install and configure the DGS-1216T Web Smart Switch.

Terms/Usage

In this manual, the term “Switch” (first letter upper case) refers to your DGS-1216T Web Smart Switch, and “switch” (first letter lower case) refers to other Ethernet switches.

INTRODUCTION

This chapter describes the features of the DGS-1216T and some background information about Ethernet/Fast Ethernet/Gigabit Ethernet switching technology.

Gigabit Ethernet Technology

Gigabit Ethernet is an extension of IEEE 802.3 Ethernet utilizing the same packet structure, format, and support for CSMA/CD protocol, full-duplex, flow control, and management objects, but with a tenfold increase in theoretical throughput over 100-Mbps Fast Ethernet and a hundredfold increase over 10-Mbps Ethernet. Since it is compatible with all 10-Mbps and 100-Mbps Ethernet environments, Gigabit Ethernet provides a straightforward upgrade without wasting a company's existing investment in hardware, software, and trained personnel.

The increased speed and extra bandwidth offered by Gigabit Ethernet are essential to coping with the network bottlenecks that frequently develop as computers and their busses get faster and more users use applications that generate more traffic. Upgrading key components, such as your backbone and servers to Gigabit Ethernet, can greatly improve network response times as well as significantly speed up the traffic between your subnets.

Gigabit Ethernet enables fast optical fiber connections to support video conferencing, complex imaging, and similar data-intensive applications. Likewise, since data transfers occur 10 times faster than Fast Ethernet, servers outfitted with Gigabit Ethernet NIC's are able to perform 10 times the number of operations in the same amount of time.

In addition, the phenomenal bandwidth delivered by Gigabit Ethernet is the most cost-effective method to take advantage of today and tomorrow's rapidly improving switching and routing internetworking technologies. Also, with expected advances in the coming years in silicon technology and digital signal processing that will enable Gigabit Ethernet to eventually operate over unshielded twisted-pair (UTP) cabling, outfitting your network with a powerful 1000-Mbps-capable backbone/server connection creates a flexible foundation for the next generation of network technology products.

Fast Ethernet Technology

The growing importance of LANs and the increasing complexity of desktop computing applications are fueling the need for high performance networks. A number of high-speed LAN technologies have been proposed to provide greater bandwidth and improve client/server response times. Among them, 100BASE-T (Fast Ethernet) provides a non-disruptive, smooth evolution from the current 10BASE-T technology. The non-disruptive and smooth evolution nature, and the dominating potential market base, virtually guarantees cost-effective and high performance Fast Ethernet solutions.

100Mbps Fast Ethernet is a standard specified by the IEEE 802.3 LAN committee. It is an extension of the 10Mbps Ethernet standard with the ability to transmit and receive data at 100Mbps, while maintaining the CSMA/CD Ethernet protocol. Since the 100Mbps Fast Ethernet is compatible with all other 10Mbps Ethernet environments, it provides a straightforward upgrade and takes advantage of the existing investment in hardware, software, and personnel training.

Switching Technology

Another approach to pushing beyond the limits of Ethernet technology is the development of switching technology. A switch bridges Ethernet packets at the MAC address level of the Ethernet protocol transmitting among connected Ethernet or Fast Ethernet LAN segments.

Switching is a cost-effective way of increasing the total network capacity available to users on a local area network. A switch increases capacity and decreases network loading by dividing a local area network into different segments, which do not compete with each other for network transmission capacity.

The switch acts as a high-speed selective bridge between the individual segments. The switch, without interfering with any other segments, automatically forwards traffic that needs to go from one segment to another. By doing this the total network capacity is multiplied, while still maintaining the same network cabling and adapter cards.

Switching LAN technology is a marked improvement over the previous generation of network bridges, which were characterized by higher latencies. Routers have also been used to segment local area networks, but the cost of a router, the setup, and maintenance required make routers relatively impractical.

Today switches are an ideal solution to most kinds of local area network congestion problems.

VLAN (Virtual Local Area Network)

A VLAN is a group of end-stations that are not constrained by their physical location and can communicate as if on a common broadcast domain, a LAN. The primary utility of using VLAN is to reduce latency and need for routers, using faster switching instead. Other VLAN utility includes:

Security: Security is increased with the reduction of opportunity in eavesdropping on a broadcast network because data will be switched to only those confidential users within the VLAN.
Cost Reduction: VLANs can be used to create multiple broadcast domains, thus eliminating the need of expensive routers.

Port-based (or port-group) VLAN is the common method of implementing a VLAN, and is the one supplied in the Switch.

Features

- 16×10/100/1000Mbps Auto-negotiation Gigabit Ethernet ports
- All RJ45 ports support auto MDI/MDIX, so there is no need to use cross-over cables or an up-link port
- Half-duplex transfer mode for connection speed 10Mbps and 100Mbps
- Full-duplex transfer mode for connection speed of 10Mbps, 100Mbps, and 1000Mbps
- Wire speed reception and transmission
- Store-and-Forward switching scheme capability to support rate adaptation and ensure data integrity
- Up to 4K unicast addresses entities per device, self-learning, and table aging
- 272KBytes packet buffer
- Supports IEEE 802.3x flow control for full-duplex mode ports
- Supports port-base VLAN

- Supports port-base QoS
- Supports Port-trunking
- Supports Port-mirroring
- Supports Port-setting for Speed/Disable, Flow control
- Easy configuration via Web Browser
- Easy setting via Web Management Utility
- Standard 19” Rack-mount size

UNPACKING AND INSTALLATION

This chapter provides unpacking and installation information for the Switch.

Unpacking

Open the shipping carton of the Switch and carefully unpacks its contents. The carton should contain the following items:

One DGS-1216T Web Smart Switch

One AC power cord, suitable for your area's electrical power connections

Four rubber feet to be used for shock cushioning

Screws and two mounting brackets

CD-ROM with Web Management Utility and Manual

Quick Installation Guide

If any item is found missing or damaged, please contact your local reseller for replacement.

Installation

The site where you install the hub stack may greatly affect its performance. When installing, consider the following pointers:

Install the Switch in a fairly cool and dry place. See Technical Specifications for the acceptable temperature and humidity operating ranges.
Install the Switch in a site free from strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.
Leave at least 10cm (4in) of space at the front and rear of the hub for ventilation.
Install the Switch on a sturdy, level surface that can support its weight, or in an EIA standard-size equipment rack. For information on rack installation, see the next section titled Rack Mounting.

When installing the Switch on a level surface, attach the rubber feet to the bottom of each device. The rubber feet cushion the hub and protect the hub case from scratching.

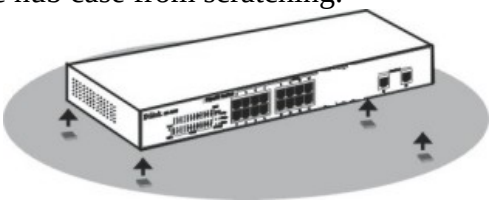

Figure 1. Attach the adhesive rubber pads to the bottom.

Rack Mounting

The Switch can be mounted in an EIA standard-size, 19-inch rack, which can be placed in a wiring closet with other equipment. Attach the mounting brackets at the Switch's front panel (one on each side), and secure them with the provided screws.

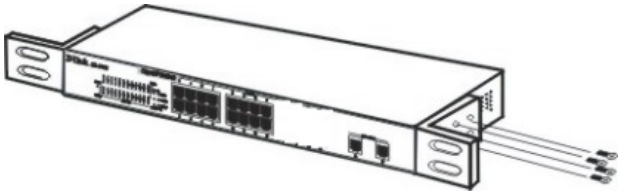

Figure 2. Combine the Switch with the provided screws.

Then, use screws provided with the equipment rack to mount the Switch in the rack.

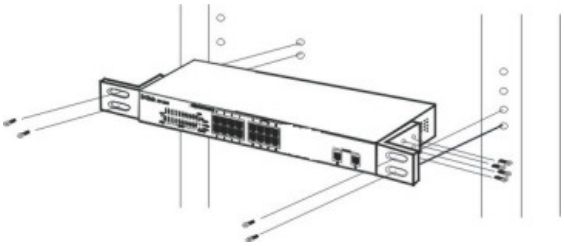

Figure 3. Mount the Switch in the rack.

Connecting Network Cable

The Switch supports 1000Mbps Gigabit Ethernet that runs in Auto-negotiation mode, 10Mbps Ethernet or 100Mbps Fast Ethernet that runs both in half- and full-duplex mode, and 1000Mbps Gigabit Ethernet that runs in full-duplex mode using four pairs of Category 5 Cable.

These RJ-45 ports are Auto-MDI type port. The Switch can auto transform to MDI-II or MDI-X type, so you can just make an easy connection that without worrying if you are using a standard or crossover RJ45 cable.

AC Power

The Switch uses a 100-240V AC, 50-60 Hz AC power supply. The power switch is located at the rear of the unit adjacent to the AC power connector and the system fan. The Switch's power supply will adjust to the local power source automatically and may be turned on without having any or all LAN segment cables connected.

IDENTIFYING EXTERNAL COMPONENTS

This chapter describes the front panel, rear panel, and LED indicators of the Switch.

Front Panel

The figure below shows the front panels of the Switch.

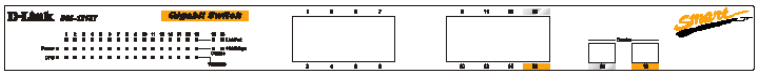

Figure 4. Front panel of 16-port Gigabit Ethernet Switch.

LED Indicator:

Comprehensive LED indicators display the status of the Switch and the network (see the LED Indicators chapter below).

Gigabit Ethernet Ports (Port 1~16):

The Switch has sixteen Gigabit twisted pair ports, which support auto negotiable 10/100/1000Mbps and auto MDI/MDIX crossover detection function. This function provides true "plug and play" capability; you just need to plug-in the network cable to the hub directly regardless of if the end node is NIC (Network Interface Card) or switch and hub. These ports can operate in half-duplex mode for 10/100Mbps and full-duplex mode for 10/100/1000Mbps.

Mini GBIC Ports

The Switch is equipped with two mini-GBIC ports, which support optional 1000BASE-SX/LX mini-GBIC modules.

Note: When the port is set to "Forced Mode", the Auto MDI/MDIX will be disabled.

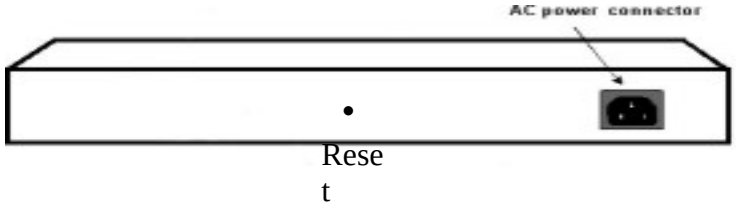

Figure 5. Rear panel of the Switch.

AC Power Connector:
This is a three-pronged connector that supports the power cord. Plug in the female connector of the provided power cord into this connector, and the male into a power outlet. Supported input voltages range from 100-240V AC at 50-60Hz.

Reset:
The Reset button is used to reset all the settings back to the factory defaults.
Note: Be sure that you recorded the settings of your device, or else all the settings will be erased when clicking the "Reset" button.

UNDERSTANDING LED INDICATORS

The front panel LEDs provides instant status feedback, and helps monitor and troubleshoot the Switch when needed.

Figure 6. LED indicators of the Switch.

Power and System LEDs

Power: Power Indicator

On	:	When the Power LED lights on, the Switch is receiving power.
Off	:	When the Power turns off or the power cord is not properly connected.

CPU: Management Indicator

Blinking	:	When the CPU is working, the System LED is blinking.
On/Off	:	The CPU is not working.

Ports 1~16 Status LEDs

Link/Act:

On	:	When the Link/ACT LED lights on, the respective port is successfully connected to an Ethernet network.
Blinking	:	When the Link/ACT LED is blinking, the port is transmitting or receiving data on the Ethernet network.
Off	:	No link.

1000Mbps

On	:	When the 1000Mbps LED lights on, the respective port is connected to a 1000Mbps Gigabit Ethernet network.
Off	:	When the respective port is connected to a 10Mbps Ethernet or 100Mbps Fast Ethernet network.

100Mbps

On	:	When the 100Mbps LED lights on, the respective port is connected to a 100Mbps Fast Ethernet network.
Off	:	When the respective port is connected to a 10Mbps Ethernet or 1000Mbps Gigabit Ethernet network.

Option Ports mini-GBIC 15 & mini-GBIC 16 mini-GBIC Status LEDs

Link/Act:

On	:	When the mini-GBIC module is installed and connected to a network, the Link/ACT LED lights on.
Blinking	:	When the LED is blinking, the mini-GBIC module is receiving data on a network.
Off	:	No link.

1000Mbps

On	:	When the 1000Mbps LED lights on, the respective port is connected to a 1000Mbps Gigabit Ethernet network.
Off	:	When the respective port is disconnected to the network.

CONFIGURATION

Through the Web browser you can configure settings on the Switch such as VLAN, Trunking, QoS… etc.
With the included Web Management Utility, you can easily discover all the Web Managed switches, assign IP Addresses, change passwords and upgrade new firmware.

Installing the Web Management Utility

The following are instructions guiding you through the installations of the Web Management Utility.

1. Insert the Utility CD in the CD-ROM Drive.
2. From the **Start** menu on the Windows desktop, select **Run**.
3. In the **Run** dialog box, type D:\Web Management Utility\setup.exe (D:\ depends where your CD-ROM drive is located) and click **OK**.
4. Follow the on-screen instructions to install the utility.
5. Upon completion, go to **Program Files -> web_management_utility** and execute the Web Management utility. (Figure 7.)

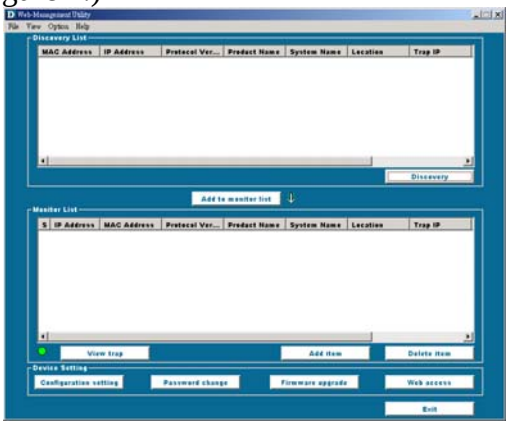

Figure 7. Web Management Utility

The Web Management Utility is divided into four parts: ***Discovery List***, ***Monitor List***, ***Device Setting***, and ***Toolbar function***. For detailed explanation, follow the section below.

Discovery List

This is the list where you can discover all the Web management devices in the entire network.

By clicking the ***"Discovery"*** button, you can list all the Web Management devices in the discovery list.

Double click the ***"Add to monitor list"*** button to select a device from the Discovery List to the Monitor List.

System word definitions in the Discovery List:

- ***MAC Address:*** Shows the device MAC Address.
- ***IP Address:*** Shows the current IP address of the device.
- ***Protocol version:*** Shows the version of the Utility protocol.
- ***Product Name:*** Shows the device product name.
- ***System Name:*** Shows the appointed device system name.
- ***Location:*** Shows where the device is located.
- ***Trap IP:*** Shows the IP where the Trap will be sent.
- ***Subnet Mask:*** Shows the Subnet Mask set of the device.
- ***Gateway:*** Shows the Gateway set of the device.

Monitor List

All the Web Smart devices in the Monitor List can be monitored; you can also receive the trap and show the status of the device.

System word definitions in the Monitor List:

- ***S:*** Shows the system symbol of the Web-Smart device,  represents a device system that is not alive.

- ***IP Address:*** Shows the current IP address of the device.
- ***MAC Address:*** Shows the device MAC Address.
- ***Protocol version:*** Shows the version of the Utility protocol.
- ***Product Name:*** Shows the device product name.
- ***System Name:*** Shows the appointed device system name.
- ***Location:*** Shows where the device is located.
- ***Trap IP:*** Shows the IP where the Trap will be sent.
- ***Subnet Mask:*** Shows the Subnet Mask set of the device.
- ***Gateway:*** Shows the Gateway set of the device.

View Trap: The Trap function can receive the events that occur from the Web Management Switch in the Monitor List.

There is a light indicator behind the ***"View Trap"*** button. When the indicator lights green, it means that there is no trap transmitted. When it lights red, it means that a new trap has been transmitted, reminding the user to view the trap. (Figure 8)

Figure 8.

When the ***"View Trap"*** button is clicked, a Trap Information window will appear, displaying the trap information including, the Symbol, Time, Device IP, and the Event occured. (Figure 9)

The symbol "  " represents a new trap signal; this symbol will disappear after you review and click on the event record.

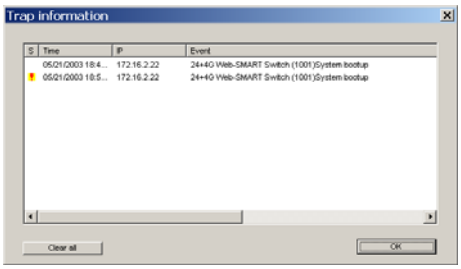

Figure 9.

Note: In order to receive Trap information, the Switch has to be configured with Trap IP and Trap Events in Web browser, which are available in the Trap Setting Menu (see Page 45 for detail).

Add Item: To add a device to the Monitor List manually, enter the IP Address of the device that you want to monitor.

Delete Item: To delete the device in the Monitor List.

Device Setting

You can set the device by using the function key in the Device Setting Dialog box.

Configuration Setting: In this Configuration Setting, you can set the IP Address, Subnet Mask, Gateway, Set Trap to (Trap IP Address), System name, and Location.

Select the device in the Discovery list or Monitor List and click this button. The Configuration Setting window will appear as in Figure 10. After entering the data that you want to change, you must enter the password and click the “Set” button to process the change immediately.

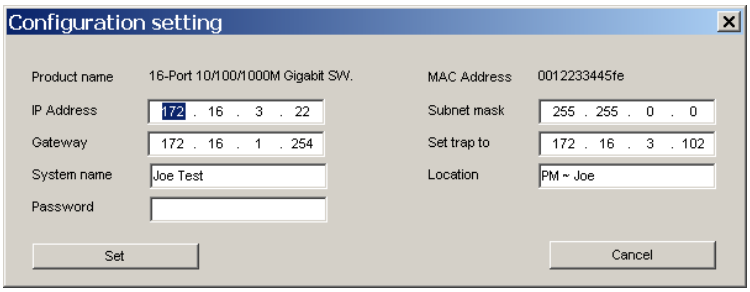

Figure 10. Configuration Setting

Password Change: To change the password, enter the original password, the new password, and confirm the original password. Click the ***"Set"*** button to proceed with the password change.

Figure 11. Password Change

Firmware Upgrade: When the device has a new function, there will be a new firmware to update the device. Use this function to upgrade the firmware.

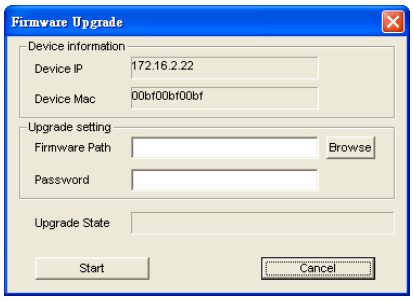

Figure 12.

Web Access: Double click the device in the Monitor List or select a device in the Monitor List and click the ***"Web Access"*** button to access the device in the Web browser.

Toolbar

The toolbar in the Web Management Utility has four main tabs: File, View, Options, and Help.

The ***"File TAB"*** has the Monitor Save, Monitor Save As, Monitor Load, and Exit functions.

Monitor Save: To record the setting of the Monitor List to the default settings. The next time you open the Web Management Utility, it will automatically load the default recorded setting.

Monitor Save As: To record the setting of the Monitor List to an appointed filename and file path.

Monitor Load: To manually load the setting file of the Monitor List.

Exit: To exit the Web Management Utility.

The ***"View TAB"*** has the view log and clear log function. This function will display the trap setting.

View Log: To show the event of the Web Management Utility and the device.

Clear Log: To clear the log.

The ***"Option TAB"*** has the Refresh Time function. This function helps you to refresh the time frame that you are monitoring the device. Choose ***15 secs***, ***30 secs***, ***1 min***, ***2 min***, ***and 5 min*** to select the time for monitoring.

The ***"Help TAB"*** has the About function. It will show the current version of the Web Management Utility.

Configuring the Switch

The DGS-1216T Web Smart Switch has a Web GUI interface for smart switch configuration. The Switch can be configured through the Web Browser. A network administrator can manage, control, and monitor the Switch from the local area network. This section indicates how to configure the Switch to enable its smart functions including:

- Port Setting (Speed/Disable, Duplex mode, Flow Control, and Port base QoS)
- Virtual LAN Group setting (VLAN)
- Port Trunking
- Port Mirroring
- System Setting
- Device status and Statistic

Login

Before you configure this device, note that when the Web Smart Switch is configured through an Ethernet connection, make sure the manager PC must be set on same the **IP network**. For example, when the default network address of the default IP address of the Web Smart Switch is ***192.168.0.1***, then the manager PC should be set at 192.168.0.x (where x is a number between 2 and 254), and the default subnet mask set at 255.255.255.0.

Open a Web browser such as Internet Explorer 5.0 or above. Enter IP address ***http://192.168.0.1*** (the factory-default IP address setting) to the address location.

Figure 13.

Through the Web Management Utility, you do not need to remember the IP Address. Select the device shown in the Monitor List of the Web Management Utility to settle the device on the Web Browser.

When the following dialog page appears, enter the default password ***"admin"*** and click the ***"Login"*** button to enter the main configuration window.

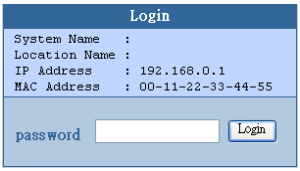

Figure 14.

After entering the password, the main page appears; the screen will display the device status.

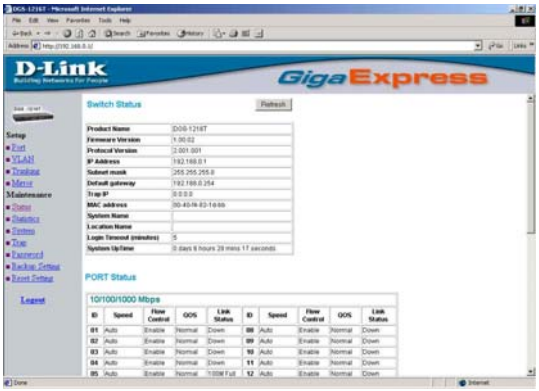

Figure 15. Device Status

Setup Menu

When the main page appears, find the ***Setup menu*** in the left side of the screen (Figure 16). Click on the setup item that you want to configure. There are eleven options: *Port Settings, VLAN Settings, Trunk Setting, Mirror Setting, Device Status, Statistic, System Settings, Trap Setting, Password Setting, Backup Setting, and Reset Setting,* as shown in the Main Menu screen.

Figure 16. Setup menu

Configuring Setup Setting

There are four items, including *Port Settings, VLAN Settings, Trunk Settings, and Mirror Settings,* in the Setup menu.

Port Settings

The Port Settings menu (Figure 17) will show each port's status. Click the ID parameter to set each port's *Speed, Flow Control, QoS priority, and Link Status*. When you need to renew the posted information, click the "Refresh" button.

The *Link Status* in the screen will show the connection speed and duplex mode. If the port is disconnected, the dialog box will display ***down***.

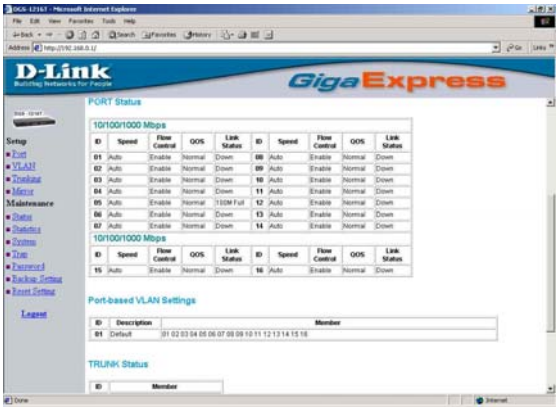

Figure 17. Port Setting

Note:
Be sure that you reset the Gigabit port when transferring the media type (Fiber to Copper or Copper to Fiber).
The priority of Gigabit Fiber port is higher than Copper.
To change the port setting, click on the ID parameter to configure the Speed/Disable, Flow control, and QoS settings for the selected port.

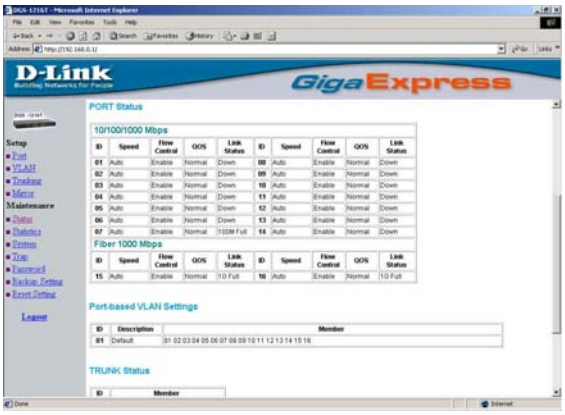

Figure 18

Speed/Disable:

This setting has six modes (***100M Full***, ***100M Half***, ***10M Full***, ***10M Half, Auto***, ***and Disable***) for speed or port disable selections.

Flow Control:

This setting determines whether or not the Switch will be handling flow control. Set ***FlowCtrl*** to ***Enable*** to avoid data transfer overflows. If set to ***Disable***, there is either no flow control or other hardware/software management.

When the port is set to ***forced mode***, the flow control will automatically be set to ***Disable***.

QoS:

QoS settings should be set for ports that need to have a high priority to manage the data transfer. Set the port's QoS to high to determine the port will always transfer their data first.

VLAN Settings (Virtual Local Area Network)

Group individual ports into a small "Virtual" network of their own to be independent of the other ports. To add a VLAN group, click

the “Add Group” button. The new VLAN configuration window will appear. You can fill in the description in order to describe this VLAN Group and check on the port to be a member of this VLAN Group. Click the ***“Apply”*** button to execute the setting.

Figure 19. VLAN Group Settings

Once you want to modify the VLAN Group, check the ID parameter; the ID VLAN configuration window will appear.

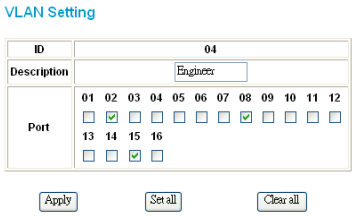

Figure 20. VLAN Settings

Trunk Setting

The Trunk function enables you to cascade two devices with twice the amount of bandwidth (maximum up to 8Gbps in full-duplex mode).
There are three selections in each group of trunk settings as follows:
Group 1: Selection 1(disable), Selection 2(port 1, 2), Selection 3(port 1, 2, 3, 4).
Group 2: Selection 1(disable), Selection 2(port9, 10), Selection 3(port 9, 10, 11, 12).

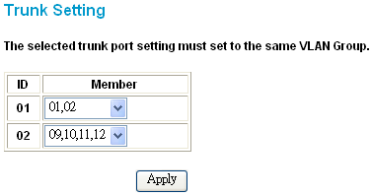

Figure 21. Trunk Settings

Be sure that the selected trunk setting port connects to a device with the same VLAN group.

Mirror Setting

Port Mirroring is a method of monitoring network traffic that forwards a copy of each incoming and/or outgoing packet from one port of a network switch to another port where the packet can be studied. It enables the manager to keep close track of switch performance and alter it if necessary.

Configuring the port mirroring by assigning a source port from which to copy all packets, and a sniffer port where those packets will be sent.

The selection of the sniffer mode is as follows:

RX (receive) mode: This mode will duplicate the data that is sent to the source and forwards it to the sniffer port.

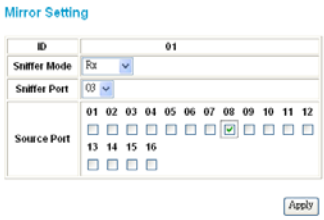

Figure 22.

Device Status

Click on the ***"Status"*** button to display the device status on this screen. The System Status, Port Status, VLAN Status, Trunk Status, and Mirror Status will be displayed.
Click ***"Refresh"*** when you need to renew the posted information.

Statistic

The Statistic Menu screen will show the status of each port packet count.

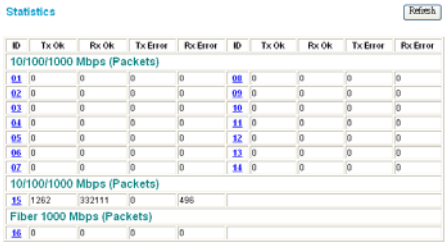

Figure 23. Statistic

For detailed packet information, click on the ID parameter as shown in Figure 24.

Figure 24.

System Setting

The System Setting includes the System name, Location name, Login Timeout, IP Address, Subnet Mask, and Gateway. Through the Web Management Utility, you can easily recognize the device by using the System Name and the Location Name.

The Login Timeout is used to set the idle time-out for security issues. When there is no action on the Web Smart Utility and the utility times out, you must re-login to the Web Smart Utility before you are able to change any system settings.

Enter the IP Address, Subnet Mask, and Gateway for the device.

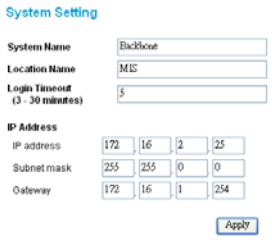

Figure 25.

Trap Setting

The Trap Setting enables the device to monitor the Trap through the Web Management Utility. Set the Trap IP Address of the manager where the trap will be sent.

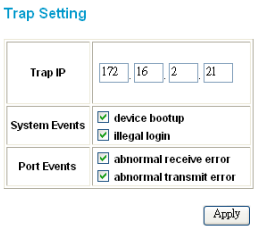

Figure 26. Trap Setting

- **System Events:** Monitoring the system's trap.

  Device Bootup: A trap when booting up the system.

  Illegal Login: A trap when there is an incorrect password login. This will also record the IP that attempted to login.

- **Twisted Pair Port Events:** Monitoring the copper port status.

Abnormal* Receive Error: A trap when there is a receive data error in the copper port.

Abnormal* Transmit Error: A trap when there is a transmit data error in the copper port.

Abnormal*: 50 error packet count within 10 seconds.

Set Password

Password is the invaluable tool for the manager to secure the Web Management Switch. This function is used to change the password.
If you forget the password, press the "Reset" button in the rear panel of the Switch. Current switch settings, such as VLAN, Port Setting… etc. will be lost and the Switch will be restored to the factory default settings.

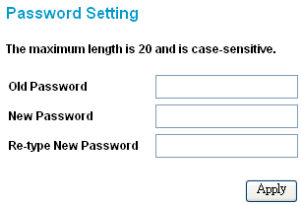

Figure 27. Set Password

Backup Setting

The backup tools help you to backup the current switch settings. To backup the settings, click the ***"Backup"*** button to save the setting.
To restore a current setting file to the device, you must specify the backup file and click the ***"Restore"*** button to implement the settings of the recorded file.

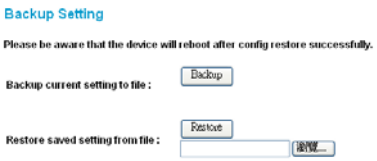

Figure 28. Backup Setting

Note: When restoring a recorded file, the current password will not be erased.

Reset Setting

The Factory Reset button helps you to reset the device back to the factory default settings. Be aware that the entire configuration will be reset. The IP address of the device will be set to the default setting 192.168.0.1.

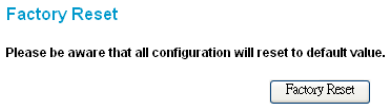

Figure 29. Reset Setting

Logout

When clicking this button, the Web configuration will go back to first Login page.

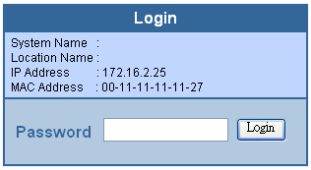

Figure 30. Logout

TECHNICAL SPECIFICATIONS

Genera	
Standards	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000BASE-T Gigabit Ethernet IEEE 802.3x Full Duplex Flow Control IEEE 802.3z 1000BASE-SX/LX Gigabit Ethernet
Protocol	CSMA/CD
Data Transfer Rate	Ethernet: 10Mbps (half-duplex), 20Mbps (full-duplex) Fast Ethernet: 100Mbps (half-duplex), 200Mbps (full-duplex) Gigabit Ethernet: 2000Mbps (full-duplex)
Topology	Star
Network Cables	10BASET: 2-pair UTP Cat. 3, 4, 5; up to 100m 100BASE-TX: 2-pair UTP Cat. 5; up to 100m 1000BASE-T: 4-pair UTP Cat. 5; up to 100m Fiber module: mini-GBIC Fiber module
Number of Ports	16 × 10/100/1000Mbps Auto-MDIX RJ-45 ports 2 × mini-GBIC fiber slot
Physical and Env :onmental	
AC inputs	100-240V AC, 50/60 Hz internal universal power supply
Power Consumption	25 Watts (Max)
Temperature	Operating: 0° ~ 50° C (32° ~ 122°F), Storage: -10° ~ 70° C (14° ~ 158°F)
Humidity	Operating: 10% ~ 90%, Storage: 5% ~ 90%
Dimensions	440 x 210 x 44 mm (17.32 x 8.27 x 1.73 in) (W x H x D)
EMI:	FCC Class A, CE Mark Class A
Safety:	CUL

Perforı ance

Transmits Method:	Store-and-forward
Filtering Address Table:	4K entries per device
Packet Filtering/Forwarding Rate:	10Mbps Ethernet: 14,880/pps 100Mbps Fast Ethernet: 148,800/pps 1000Mbps Gigabit Ethernet: 1,488,000/pps
MAC Address Learning:	Automatic update
Transmits Method:	Store-and-forward
RAM Buffer:	272K bytes per device

D-Link®
Building Networks for People

Limited Warranty
(USA Only)

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. ("D-Link") provides this Limited warranty for its product only to the person or entity that originally purchased the product from:

- D-Link or its authorized reseller or distributor and
- Products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, addresses with an APO or FPO.

Limited Warranty: D-Link warrants that the hardware portion of the D-Link products described below will be free from material defects in workmanship and materials from the date of original retail purchase of the product, for the period set forth below applicable to the product type ("Warranty Period"), except as otherwise stated herein.

Limited Lifetime Warranty for the Product(s) is defined as follows:

- Hardware for as long as the original customer/end user owns the product, or five years after product discontinuance, whichever occurs first (excluding power supplies and fans)
- Power Supplies and Fans Three (3) Year
- Spare parts and spare kits Ninety (90) days

D-Link's sole obligation shall be to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund at D-Link's sole discretion. Such repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement Hardware need not be new or have an identical make, model or part. D-Link may in its sole discretion replace the defective Hardware (or any part thereof) with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement Hardware will be warranted for the remainder of the original Warranty Period from the date of original retail purchase. If a material defect is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to repair or replace the defective Hardware, the price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware (or part thereof) that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty: D-Link warrants that the software portion of the product ("Software") will substantially conform to D-Link's then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days ("Warranty Period"), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. D-Link's sole obligation shall be to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link's functional specifications for the Software or to refund at D-Link's sole discretion. Except as otherwise agreed by D-Link in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Software will be

warranted for the remainder of the original Warranty Period from the date or original retail purchase. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

Non-Applicability of Warranty: The Limited Warranty provided hereunder for hardware and software of D-Link's products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold "As-Is" without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim: The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow D-Link to confirm the same.
- The original product owner must obtain a Return Material Authorization ("RMA") number from the Authorized D-Link Service Office and, if requested, provide written proof of purchase of the product (such as a copy of the dated purchase invoice for the product) before the warranty service is provided.
- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do not include any manuals or accessories in the shipping package. D-Link will only replace the defective portion of the Product and will not ship back any accessories.

The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery ("COD") is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer and shipped to **D-Link Systems, 17595 Mt. Herrman Street, Fountain Valley, CA. 92708.** D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link, with shipping charges prepaid. Expedited shipping is available if shipping charges are prepaid by the customer and upon request.
D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link's reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered: This limited warranty provided by D-Link does not cover: Products, if in D-Link's judgment, have been subjected to abuse, accident, alteration, modification,

tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product. Repair by anyone other than D-Link or an Authorized D-Link Service Office will void this Warranty.

Disclaimer of Other Warranties: EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED "AS-IS" WITHOUT ANY WARRANTY OF ANY KIND WHATSOEVER INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO NINETY (90) DAYS. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY, SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

Limitation of Liability: TO THE MAXIMUM EXTENT PERMITTED BY LAW, D-LINK IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT, INCONVENIENCE OR DAMAGES OF ANY CHARACTER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOSS OF REVENUE OR PROFIT, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, FAILURE OF OTHER EQUIPMENT OR COMPUTER PROGRAMS TO WHICH D-LINK'S PRODUCT IS CONNECTED WITH, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT RETURNED TO D-LINK FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPAIR, REPLACEMENT OR REFUND OF THE DEFECTIVE OR NON-CONFORMING PRODUCT. THE MAXIMUM LIABILITY OF D-LINK UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT COVERED BY THE WARRANTY. THE FOREGOING EXPRESS WRITTEN WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY OTHER WARRANTIES OR REMEDIES, EXPRESS, IMPLIED OR STATUTORY

Governing Law: This Limited Warranty shall be governed by the laws of the State of California. Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This limited warranty provides specific legal rights and the product owner may also have other rights which vary from state to state.

Trademarks: D-Link is a registered trademark of D-Link Systems, Inc. Other trademarks or registered trademarks are the property of their respective manufacturers or owners.

CE Mark Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures**:**

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

For detailed warranty outside the United States, please contact corresponding local D-Link office.

Product registration is entirely voluntary and failure to complete or return this form will not diminish your warranty rights.